

CLAIMS

1. An organic semiconductor material having rodlike low-molecular-liquid crystallinity, comprising: a skeleton structure comprising L 6 π electron aromatic rings, M 10 π electron aromatic rings, and N 14 π electron aromatic rings, wherein L, M, and N are each an integer of 0 (zero) to 4 and L + M + N = 1 to 4; and a terminal structure attached to both ends of said skeleton structure, said terminal structure being capable of developing liquid crystallinity,

the phase angle θ of impedance of said organic semiconductor material being $-80^\circ \leq \theta \leq -90^\circ$ as determined in the measurement of impedance in a frequency f range of $100 \text{ Hz} \leq f \leq 1 \text{ MHz}$ in such a state that said organic semiconductor material in an isotropic phase state is held between a pair of opposed substrates with an interelectrode spacing of $9 \mu\text{m}$.

2. An organic semiconductor element comprising a functional layer comprising said organic semiconductor material according to claim 1, said functional layer having been formed by heating said organic semiconductor material to a temperature high enough for the organic semiconductor material to exhibit at least a smectic phase and then cooling the organic semiconductor material, at least a part of said organic semiconductor material being in a crystal phase.

3. An organic semiconductor element comprising a functional layer comprising said organic semiconductor material according to claim 1, said organic semiconductor material exhibiting a smectic phase.